CENTERS FOR DISEASE CONTROL

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MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

HIV-Related Knowledge and Behaviors Among High School Students – Selected U.S. Sites, 1989

Since 1987, state, territorial, and local departments of education have periodically assessed human immunodeficiency virus (HIV)-related knowledge and behaviors among high school students (13–18 years of age) in their jurisdictions (*1*). This report presents selected data from surveys conducted by departments of education in 30 states, 10 cities, and two territories during February–May 1989.

A questionnaire for anonymous self-administration was developed by representatives from 71 state, territorial, and local departments of education, with technical assistance from CDC. The questionnaire contained 39 questions: five for assessing demographic characteristics of respondents, 26 for HIV-related knowledge and beliefs, and eight for intravenous (IV)-drug use and sexual behaviors. Each department of education chose which of the 39 questions to administer: all sites administered questions that assessed demographic characteristics and HIV-related knowledge and beliefs; 25 sites, questions that assessed IV-drug–use behaviors; and 19 sites, questions that assessed sexual behaviors.

Sampling schemes varied among the 42 sites. Eleven sites* drew probability samples from well-defined sampling frames of schools and students, which allowed weighted results of known precision to be computed. Ten sites† also drew probability samples of both schools and students. However, documentation necessary to weight the data or to estimate precision was not available. In general, the 21 other sites§ drew nonprobability samples of either schools or students.

School response rates ranged from 27% to 100%; student response rates ranged from 41% to 92%. Sample sizes ranged from 303 to 10,279 students (Table 1). From 33% to 86% (median: 62%) of students from all sites reported having been taught about acquired immunodeficiency syndrome (AIDS) or HIV infection in school. The percentage of students from all sites who reported having discussed AIDS or HIV infection with their parents or other adults in their families ranged from 43% to 69% (median: 56%).

*Delaware, District of Columbia, Hawaii, Iowa, Kentucky, Massachusetts, Pennsylvania, and South Dakota; Dallas, Jersey City, and Miami.
†Alabama, Arkansas, California, Louisiana, Michigan, Missouri, Oregon, and Rhode Island; Chicago and Seattle.
§Colorado, Georgia, Idaho, Kansas, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Puerto Rico, Tennessee, Utah, Virgin Islands, and Washington; Fort Lauderdale, Los Angeles, New York City, San Diego, and San Francisco.

TABLE 1. Size, response rates, and demographic characteristics o

Site	Sample size	School response rate (%)	Student response rate (%)	Sex (%)	
				Female	Male
State/Territory					
Alabama*	6,702	100	90†	51	49
Arkansas*	303	40	86	47	53
California*§	1,858	27	41†	55	46
Colorado§¶	1,908	NA**	NA	52	48
Delaware††	2,414	100	NA	51	49
District of Columbia††§§	1,077	100	66	56	45
Georgia¶	421	81	68	58	42
Hawaii††	4,908	95	78	49	51
Idaho¶	1,008	80	NA	54	47
Iowa††	1,463	53	90	48	52
Kansas¶	1,101	100	83	54	46
Kentucky††	1,458	63	84	49	51
Louisiana*	6,013	100	70†	51	49
Massachusetts§†††	2,043	82	81	51	49
Michigan*	873	58	90†	52	48
Missouri*	1,201	96	NA	53	47
New Jersey§¶	2,153	75	88	48	52
New Mexico¶	770	76	NA	56	44
New York§¶	3,026	85	NA	51	49
North Carolina¶	10,279	100†	NA	51	49
North Dakota¶	2,924	96	NA	50	50
Ohio¶	4,341	NA	NA	53	47
Oklahoma¶	2,521	30	43	51	49
Oregon*	2,895	41	74	50	50

HIV — Continued

ics of samples — selected U.S. sites, 1989

ale	Grade (%)				Race/Ethnicity (%)				
	9	10	11	12	Black	White	Hispanic	Asian	Other
49	33	35	31	1	36	60	3	1	1
53	2	84	11	3	18	80	2	0	1
46	27	30	22	21	7	54	24	12	4
48	24	26	27	24	4	83	10	2	2
49	22	24	30	24	21	72	3	2	2
45	1	94	4	0	84	3	7	2	4
42	13	21	37	29	36	60	3	1	1
51	10	77	8	4	3	19	14	61	3
47	3	88	3	5	2	91	3	1	3
52	30	19	42	10	1	96	1	1	1
46	40	27	16	15	11	79	7	1	2
51	97	1	1	1	8	85	4	2	2
49	31	28	26	16	52	39	5	3	2
49	30	24	30	16	4	88	4	2	2
48	29	32	19	20	24	66	5	2	2
47	0	0	0	100	17	79	1	2	1
52	23	19	28	30	23	53	18	4	3
44	24	31	25	19	2	35	44	1	19
49	25	28	25	22	NA	NA	NA	NA	NA
49	20	16	17	19	25	71	1	1	3
50	25	26	27	21	1	94	2	0	3
47	23	31	24	23	13	83	2	1	1
49	34	32	12	19	14	69	4	1	12
50	23	30	25	22	1	86	6	2	5

Pennsylvania[§††]	4,548	89	82[†]	52	48	2
Puerto Rico[¶]	984	95	92	57	43	3
Rhode Island*	7,076	100	77	NA	NA	
South Dakota[††]	1,392	90	87	49	51	2
Tennessee[¶]	2,098	80	NA	55	45	2
Utah[¶]	4,174	NA	NA	49	51	2
Virgin Islands[¶]	1,147	100	NA	53	48	4
Washington[§¶]	1,176	49	NA	53	47	
City						
Chicago*	1,171	89	90[†]	57	43	3
Dallas[††]	3,483	100	87	53	47	2
Fort Lauderdale[¶]	861	100	90	51	49	5
Jersey City[††]	493	100	70	45	56	5
Los Angeles[¶]	3,030	100	90[†]	47	53	
Miami[††]	1,192	100	83	51	49	3
New York City[¶]	1,135	50	NA	54	46	3
San Diego[¶]	317	100	61	61	39	
San Francisco[¶]	793	94	NA	54	46	
Seattle*	1,374	100	67	52	49	5

*Probability sample, unweighted data.
[†]Estimated response rate.
[§]Surveys did not include students from the largest cities.
[¶]Nonprobability sample, unweighted data.
**NA = not available.
[††]Probability sample, weighted data.
[§§]Categorized as a state for funding purposes.

HIV – Continued

29	23	26	22	11	80	6	1	2
32	25	24	20	1	5	90	0	3
0	100	0	0	4	82	7	3	4
28	23	25	24	1	82	3	1	13
21	30	26	24	12	84	3	1	1
28	26	26	21	1	86	6	1	6
42	38	13	4	83	2	12	1	3
0	45	0	54	NA	NA	NA	NA	NA
34	29	18	18	62	10	22	3	3
26	48	18	9	51	19	25	2	3
59	22	9	10	26	58	12	2	3
57	33	6	4	39	9	30	11	2
0	85	12	3	16	17	45	17	5
32	25	23	21	43	13	40	2	2
31	20	32	17	NA	NA	NA	NA	NA
1	95	4	1	13	35	24	22	5
2	69	24	6	12	15	11	56	7
51	13	9	27	23	45	7	22	5

HIV – Continued

Varying proportions of students knew that AIDS or HIV infection cannot be transmitted by blood donation (32%–75% [median: 58%]), mosquito or other insect bites (22%–67% [median: 48%]), use of public toilets (44%–85% [median: 73%]), or blood tests (59%–82% [median: 73%]). Most students knew that AIDS or HIV infection can be transmitted by sharing needles used to inject drugs (93%–100% [median: 98%]) or from having sexual intercourse without using a condom (74%–98% [median: 88%]) (Table 2).

Rates of reported IV-drug use varied: 2%–5% of students (median: 3%) reported ever injecting cocaine, heroin, or other illegal drugs, and 0.2%–3% (median: 0.9%) reported sharing needles used to inject any drugs. In all but one site, more male than female students reported these behaviors (Table 3, page 395).

Rates of reported sexual intercourse also varied: 27%–76% of students (median: 56%) reported having had sexual intercourse at least once. In addition, 7%–40% (median: 21%) reported ever having had four or more sex partners. At each site, more male than female students reported having had sexual intercourse at least once and ever having had four or more sex partners (Table 4, page 396).

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Editorial Note: From 1988 to 1989, the number of state, territorial, and local departments of education that conducted surveys about HIV-related knowledge and behaviors among high school students nearly tripled (from 15 to 42). This increase represents a notable step toward establishment of state, territorial, and local school-based surveillance systems for monitoring priority health-risk behaviors among high school students.

HIV-related knowledge and behaviors among high school students are cause for concern throughout the United States. Most importantly, these surveys indicate that many students are at risk for HIV infection because they use IV drugs and share needles or because they have sexual intercourse with multiple partners. Many of these findings are similar to those from surveys conducted in 1988 (*1*).

Although the findings in this report are based on a combination of probability and nonprobability samples and comparisons of data among sites should be made with caution, these results have assisted in planning and evaluating broad programs in

HIV — Continued

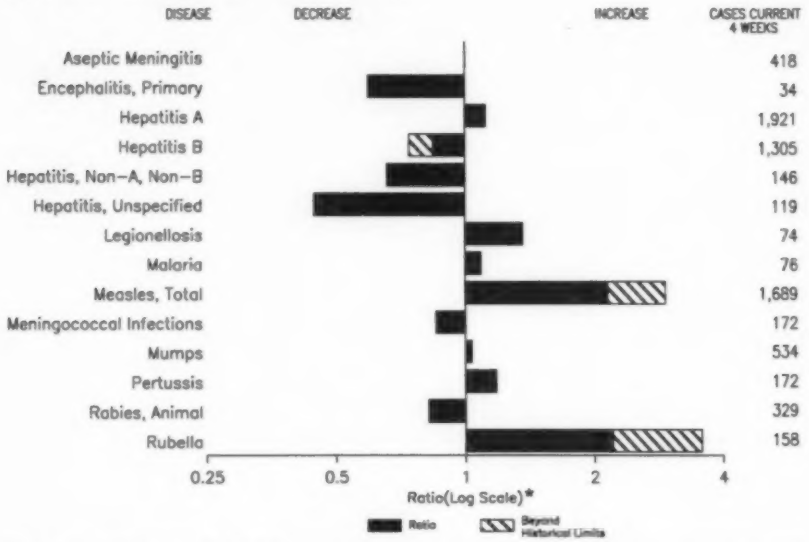
TABLE 2. Percentage of students who responded correctly to questions measuring knowledge of HIV transmission — selected U.S. sites, 1989

Site	Correctly identified as nonrisk factor for HIV (%)				Correctly identified as risk factor for HIV (%)	
	Giving blood	Insect bites	Using public toilets	Having a blood test	Intravenous-drug use	Sexual intercourse without using a condom
State/Territory						
Alabama*	61.1	43.2	67.5	76.9	98.6	88.4
Arkansas*	63.3	44.0	68.9	72.5	99.0	93.7
California*†	55.6	42.3	72.2	70.8	97.7	84.7
Colorado†§	52.0	45.6	82.6	69.8	99.0	93.5
Delaware¶	71.6	49.6	69.1	77.2	98.1	96.2
District of Columbia¶**	49.0	44.2	70.9	68.3	96.7	86.6
Georgia§	57.0	45.3	73.0	68.5	99.0	89.1
Hawaii¶	51.7	64.0	82.5	72.5	96.6	84.7
Idaho§	54.3	43.3	75.5	67.4	97.8	92.2
Iowa¶	60.9	45.3	79.2	74.2	97.6	90.8
Kansas§	64.7	58.0	80.1	72.8	98.5	92.2
Kentucky¶	62.3	54.8	71.0	74.6	96.3	84.3
Louisiana*	58.2	50.1	66.8	71.2	96.6	NA††
Massachusetts†¶	66.5	54.3	76.6	76.3	99.2	93.4
Michigan*	66.1	48.0	72.1	76.4	97.0	83.7
Missouri*	63.3	44.2	73.9	73.4	97.6	96.7
New Jersey†§	61.4	50.6	73.2	73.1	98.4	89.5
New Mexico§	55.9	50.7	75.2	72.0	97.2	80.6
New York†§	56.0	58.4	81.3	74.6	98.7	87.0
North Carolina§	52.8	57.6	75.7	75.3	98.0	85.2
North Dakota§	63.7	57.6	84.2	80.3	98.9	89.6
Ohio§	64.1	50.2	75.1	73.8	98.7	92.8
Oklahoma§	60.2	55.6	76.1	75.5	98.0	91.5
Oregon*	68.6	47.5	72.4	75.8	97.6	90.8
Pennsylvania†¶	71.9	54.8	76.4	77.7	98.4	94.9
Puerto Rico§	43.3	21.7	44.4	67.1	97.7	96.3
Rhode Island*	69.9	63.9	NA	80.3	94.6	NA
South Dakota¶	60.9	48.4	80.1	72.1	99.1	87.2
Tennessee§	65.3	43.2	66.6	74.6	97.9	87.6
Utah§	54.7	48.8	70.1	69.1	97.2	92.3
Virgin Islands§	39.0	47.0	61.3	60.1	95.4	76.1
Washington†§	74.5	66.5	84.3	82.4	98.7	98.3
City						
Chicago*	39.9	41.9	70.5	64.8	94.9	79.7
Dallas¶	54.1	55.5	76.4	74.1	97.3	77.6
Fort Lauderdale§	49.0	45.2	66.7	67.7	98.7	79.2
Jersey City¶	32.4	43.9	59.0	63.2	94.7	73.8
Los Angeles§	37.9	29.0	52.1	58.5	93.9	74.5
Miami¶	42.1	45.6	70.3	68.6	97.4	87.6
New York City§	33.6	52.9	71.0	64.2	97.2	76.9
San Diego§	61.8	58.7	84.9	79.4	99.7	98.4
San Francisco§	47.7	41.7	68.8	63.4	93.0	86.4
Seattle*	56.4	48.5	75.7	70.7	97.9	86.7

*Probability sample, unweighted data.
†Surveys did not include students from the largest cities.
§Nonprobability sample, unweighted data.
¶Probability sample, weighted data.
**Categorized as a state for funding purposes.
††NA = not available.

(Continued on page 395)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending June 9, 1990, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from comparable, previous, and subsequent 4-week periods for past 5 years).

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending June 9, 1990 (23rd Week)

	Cum. 1990		Cum. 1990
AIDS	18,962	Plague	-
Anthrax	-	Poliomyelitis, Paralytic*	-
Botulism: Foodborne	1	Psittacosis	59
Infant	17	Rabies, human	-
Other	2	Syphilis: civilian	21,345
Brucellosis	20	military	123
Cholera	1	Syphilis, congenital, age < 1 year	-
Congenital rubella syndrome	1	Tetanus	22
Diphtheria	1	Toxic shock syndrome	143
Encephalitis, post-infectious	46	Trichinosis	12
Gonorrhea: civilian	288,434	Tuberculosis	8,886
military	4,031	Tularemia	26
Leprosy	82	Typhoid fever	148
Leptospirosis	16	Typhus fever, tickborne (RMSF)	87
Measles: imported	576		
indigenous	9,444		

*Three cases of suspected poliomyelitis have been reported in 1990; five of the 13 suspected cases in 1989 were confirmed and all were vaccine-associated.

TABLE II. Cases of specified notifiable diseases, United States, weeks ending June 9, 1990, and June 10, 1989 (23rd Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990
UNITED STATES	18,962	2,128	266	46	288,434	291,540	12,899	8,958	868	757	477	82
NEW ENGLAND	700	88	9	-	7,876	8,462	263	452	28	33	21	5
Maine	21	2	1	-	97	118	5	18	3	1	1	-
N.H.	40	9	-	-	91	73	5	22	2	2	3	-
Vt.	7	10	2	-	28	29	3	26	3	-	4	-
Mass.	378	30	2	-	3,085	3,279	192	280	12	29	9	4
R.I.	34	24	-	-	461	588	27	25	-	1	4	1
Conn.	220	13	4	-	4,114	4,375	31	81	8	-	-	-
MID. ATLANTIC	5,965	256	21	3	39,765	47,425	1,930	1,425	99	57	129	16
Upstate N.Y.	824	113	19	1	5,844	7,186	419	307	15	17	53	1
N.Y. City	3,397	59	1	-	16,758	19,947	222	439	15	25	20	11
N.J.	1,179	-	1	-	6,125	6,257	216	330	28	-	19	3
Pa.	565	84	-	2	11,038	14,035	1,073	349	41	15	37	1
E.N. CENTRAL	1,312	328	63	7	56,017	50,833	942	1,143	57	54	113	-
Ohio	286	81	15	3	17,243	12,629	107	210	15	8	43	-
Ind.	116	60	2	2	4,685	3,861	62	245	3	17	18	-
Ill.	571	56	21	2	17,620	16,215	433	184	18	14	7	-
Mich.	219	113	23	-	13,429	13,783	185	314	18	15	32	-
Wis.	120	18	2	-	3,040	4,345	155	190	3	-	13	-
W.N. CENTRAL	427	94	21	1	15,529	13,242	724	421	51	15	28	-
Minn.	74	8	9	1	1,948	1,363	117	54	15	-	-	-
Iowa	20	11	2	-	1,164	1,046	157	32	2	2	2	-
Mo.	252	39	1	-	9,125	7,802	241	251	15	10	17	-
N. Dak.	-	7	-	-	47	62	7	4	2	1	-	-
S. Dak.	1	3	2	-	90	122	39	4	2	-	-	-
Nebr.	24	11	3	-	770	727	45	19	3	-	4	-
Kans.	56	15	4	-	2,385	2,120	118	57	12	2	5	-
S. ATLANTIC	3,898	507	63	14	82,200	79,537	1,576	1,643	128	110	69	3
Del.	40	17	3	-	1,337	1,275	66	45	4	1	4	-
Md.	388	65	8	1	8,486	8,584	628	229	17	5	21	1
D.C.	302	2	-	-	5,427	5,171	12	28	4	-	-	-
Va.	333	74	22	2	7,508	6,696	120	97	18	82	6	-
W. Va.	31	9	5	-	600	584	10	44	3	1	1	-
N.C.	260	48	18	-	13,392	12,407	316	483	56	-	12	1
S.C.	160	8	-	-	6,448	6,989	20	260	9	6	10	-
Ga.	575	67	3	1	18,309	15,857	153	185	3	6	11	-
Fla.	1,809	217	4	10	20,693	21,974	251	272	14	9	4	1
E.S. CENTRAL	432	187	23	1	23,686	23,120	178	702	55	4	37	-
Ky.	76	47	6	-	2,619	2,171	45	243	16	3	16	-
Tenn.	144	39	13	1	7,362	7,421	89	374	26	-	12	-
Ala.	100	72	4	-	7,844	7,484	43	81	11	-	9	-
Miss.	112	29	-	-	5,861	6,044	1	4	2	1	-	-
W.S. CENTRAL	1,883	157	9	5	28,941	30,167	1,277	742	69	114	31	20
Ark.	157	5	-	-	3,774	3,028	237	40	5	10	7	-
La.	310	23	3	-	5,867	6,409	72	134	1	4	10	-
Okla.	96	14	1	5	2,666	2,558	271	66	14	11	10	-
Tex.	1,320	115	5	-	16,634	18,172	697	502	49	89	4	20
MOUNTAIN	486	98	9	-	5,240	6,134	2,028	653	82	63	24	-
Mont.	7	2	-	-	79	96	55	37	2	4	1	-
Idaho	14	-	-	-	48	94	40	37	8	-	3	-
Wyo.	2	1	1	-	78	48	22	8	4	1	-	-
Colo.	131	21	1	-	1,208	1,391	121	79	16	21	3	-
N. Mex.	40	4	-	-	533	625	317	75	3	2	3	-
Ariz.	161	44	4	-	2,366	2,186	1,150	212	15	27	8	-
Utah	46	16	-	-	182	195	158	42	10	3	1	-
Nev.	65	10	3	-	746	1,499	165	163	4	5	5	-
PACIFIC	3,879	413	48	15	29,180	32,620	3,981	1,777	319	307	25	38
Wash.	272	-	3	1	2,557	2,767	681	282	61	10	7	2
Oreg.	147	-	-	-	1,127	1,305	426	205	19	6	-	-
Calif.	3,380	376	41	13	24,828	27,934	2,745	1,231	232	287	17	30
Alaska	16	9	3	-	466	389	85	31	3	-	-	-
Hawaii	64	28	1	1	202	225	44	28	4	4	1	6
Guam	1	-	-	-	83	61	4	1	-	5	-	-
P.R.	744	36	4	-	413	497	83	138	2	20	-	-
V.I.	4	-	-	-	199	302	1	7	-	-	-	-
Amer. Samoa	-	1	-	-	28	11	13	-	-	-	-	7
C.N.M.I.	-	-	-	-	66	40	4	2	-	-	-	1

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 9, 1990, and June 10, 1989 (23rd Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1990	1990	Cum. 1990	1990	Cum. 1990	Cum. 1989	Cum. 1990	1990	Cum. 1990	1990	Cum. 1990	Cum. 1989	1990	Cum. 1990	Cum. 1989
UNITED STATES	431	473	9,444	5	576	6,966	1,296	131	2,791	67	1,227	1,014	28	489	186
NEW ENGLAND	40	-	122	-	13	272	84	2	22	3	155	205	-	6	5
Maine	-	-	27	-	-	-	8	-	-	1	5	4	-	-	-
N.H.	4	-	-	-	8	5	2	-	6	-	10	5	-	1	3
Vt.	4	-	-	-	1	1	6	-	1	-	6	5	-	-	1
Mass.	23	-	4	-	1	37	43	-	7	1	124	181	-	-	1
R.I.	3	-	27	-	3	37	5	-	4	-	-	2	-	1	-
Conn.	6	-	64	-	-	192	20	2	4	1	10	8	-	3	-
MID. ATLANTIC	93	26	572	-	135	679	193	4	161	7	291	67	-	2	11
Upstate N.Y.	19	-	155	-	101	130	74	2	71	6	235	32	-	1	3
N.Y. City	30	6	100	-	18	56	25	-	-	-	-	2	-	-	6
N.J.	29	-	22	-	9	372	40	-	30	-	13	20	-	-	2
Pa.	15	20	295	-	7	121	54	2	60	1	43	13	-	1	-
E.N. CENTRAL	22	26	2,324	-	139	1,552	174	21	302	13	239	117	-	27	20
Ohio	6	-	213	-	2	492	59	13	67	11	73	1	-	-	3
Ind.	1	15	275	-	1	17	16	3	13	-	34	8	-	-	-
Ill.	6	-	882	-	9	953	41	-	90	-	67	50	-	17	16
Mich.	6	11	311	-	125	6	38	5	101	2	35	20	-	9	-
Wis.	3	-	643	-	2	84	20	-	31	-	30	38	-	1	1
W.N. CENTRAL	6	45	516	-	12	500	44	2	79	1	40	26	-	5	4
Minn.	1	-	163	-	3	4	10	-	-	-	6	-	-	1	-
Iowa	-	-	23	-	-	5	1	-	12	-	4	9	-	3	-
Mo.	4	-	61	-	-	302	15	2	39	1	24	15	-	-	3
N. Dak.	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
S. Dak.	-	-	14	-	8	-	2	-	-	-	1	1	-	-	-
Nebr.	-	-	95	-	1	110	5	-	2	-	1	-	-	-	-
Kans.	1	45	160	-	-	79	11	-	26	-	3	1	-	-	1
S. ATLANTIC	93	15	551	1	89	357	240	56	1,118	15	123	80	-	12	7
Del.	2	-	8	-	3	35	1	1	3	-	2	1	-	-	-
Md.	24	-	95	-	12	48	24	37	651	7	35	7	-	1	2
D.C.	10	1	9	-	7	9	11	-	20	1	14	-	-	1	-
Va.	20	1	65	-	2	17	29	3	67	3	12	6	-	-	-
W. Va.	1	-	6	-	-	28	9	-	40	-	9	10	-	-	-
N.C.	7	-	3	-	9	167	37	5	132	4	24	18	-	-	1
S.C.	-	-	3	-	-	-	19	-	19	-	5	-	-	-	-
Ga.	9	-	6	-	12	-	48	-	56	-	14	9	-	-	-
Fla.	20	13	356	1†	44	53	62	10	130	-	8	29	-	10	4
E.S. CENTRAL	11	12	82	-	2	85	77	1	61	5	67	40	-	1	2
Ky.	2	10	14	-	-	2	22	-	-	-	-	1	-	-	-
Tenn.	6	2	34	-	-	43	31	1	30	-	28	14	-	1	2
Ala.	3	-	8	-	2	40	22	-	9	5	35	21	-	-	-
Miss.	-	-	26	-	-	-	2	N	N	-	4	4	-	-	-
W.S. CENTRAL	19	299	1,765	2	66	2,514	87	27	503	2	25	27	-	1	11
Ark.	1	-	8	-	19	2	11	5	119	-	1	10	-	1	-
La.	-	-	10	-	-	6	25	1	82	1	5	4	-	-	5
Okla.	5	-	142	-	-	76	9	-	97	1	19	13	-	-	1
Tex.	13	299	1,605	2§	47	2,430	42	21	205	-	-	-	-	-	5
MOUNTAIN	13	49	458	2	57	184	41	6	218	5	109	327	19	80	31
Mont.	1	-	-	-	1	13	9	-	-	-	5	-	-	13	1
Idaho	3	-	15	-	5	1	5	3	110	2	25	40	19	44	29
Wyo.	-	-	-	-	2	-	-	-	2	-	-	-	-	-	-
Colo.	1	2	46	2†	31	58	12	1	16	2	49	20	-	3	-
N. Mex.	2	-	79	-	4	30	4	N	N	-	7	4	-	-	-
Ariz.	6	-	123	-	11	45	3	1	74	-	13	257	-	18	-
Utah	-	40	44	-	-	36	4	-	4	1	6	5	-	1	-
Nev.	-	7	151	-	3	1	4	1	12	-	4	1	-	1	1
PACIFIC	134	1	3,054	-	63	823	356	12	327	16	178	125	9	356	95
Wash.	13	-	7	-	38	33	41	3	34	11	54	25	-	-	-
Oreg.	6	-	-	-	-	7	38	N	N	-	3	5	-	-	1
Calif.	112	-	2,966	-	22	765	268	8	288	4	103	93	9	349	74
Alaska	1	1	78	-	2	-	6	-	-	-	-	-	-	-	-
Hawaii	2	-	3	-	1	18	3	1	5	1	18	2	-	7	20
Guam	1	U	-	U	1	1	-	U	-	U	-	1	U	-	-
P.R.	1	-	808	-	-	386	8	-	7	-	5	3	-	-	5
V.I.	-	-	-	-	-	4	-	-	5	-	-	-	-	-	-
Amer. Samoa	-	U	1	U	-	-	-	U	2	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	5	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 9, 1990, and June 10, 1989 (23rd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990
UNITED STATES	21,345	18,289	143	8,886	8,794	26	148	87	1,736
NEW ENGLAND	840	727	11	205	223	-	11	-	3
Maine	5	5	3	-	3	-	-	-	-
N.H.	39	3	1	3	14	-	-	-	2
Vt.	1	-	-	2	4	-	-	-	-
Mass.	313	221	6	106	114	-	10	-	-
R.I.	6	14	-	31	29	-	-	-	-
Conn.	476	484	1	63	59	-	1	-	1
MID. ATLANTIC	4,715	3,772	13	2,276	1,702	1	46	4	375
Upstate N.Y.	344	383	4	201	144	-	8	-	18
N.Y. City	2,033	1,550	4	1,354	986	-	25	-	-
N.J.	757	603	-	391	253	1	11	4	115
Pa.	1,581	1,236	5	330	319	-	2	-	242
E.N. CENTRAL	1,383	692	38	896	936	-	19	6	44
Ohio	236	51	15	129	181	-	4	4	3
Ind.	23	30	2	63	79	-	-	-	-
Ill.	513	305	5	453	414	-	11	-	15
Mich.	459	266	16	216	210	-	3	2	5
Wis.	152	40	-	35	52	-	1	-	21
W.N. CENTRAL	186	147	17	238	244	8	-	11	269
Minn.	43	11	-	40	51	-	-	-	97
Iowa	26	17	2	31	28	-	-	-	10
Mo.	93	73	11	115	104	7	-	9	10
N. Dak.	1	1	-	10	9	-	-	-	31
S. Dak.	1	-	-	6	12	-	-	-	90
Nebr.	6	17	2	12	10	1	-	-	3
Kans.	16	28	2	24	30	-	-	2	28
S. ATLANTIC	6,772	6,673	7	1,750	1,822	3	12	32	503
Del.	85	77	1	19	21	-	-	1	7
Md.	512	335	-	152	166	-	6	2	198
D.C.	412	408	1	68	74	-	-	-	-
Va.	375	248	-	152	158	1	-	2	87
W. Va.	7	7	-	33	38	-	-	-	14
N.C.	797	401	3	203	203	1	-	18	3
S.C.	413	346	1	208	199	1	-	8	58
Ga.	1,686	1,469	-	274	266	-	1	1	90
Fla.	2,485	3,382	1	641	697	-	5	-	46
E.S. CENTRAL	1,835	1,127	6	715	764	2	1	12	86
Ky.	30	24	1	185	169	-	1	1	24
Tenn.	721	464	3	178	228	2	-	9	22
Ala.	595	385	2	231	215	-	-	2	40
Miss.	489	254	-	121	152	-	-	-	-
W.S. CENTRAL	3,369	2,370	7	1,105	1,042	10	3	19	236
Ark.	205	149	-	114	111	6	-	1	22
La.	1,056	531	1	115	137	-	-	1	-
Okla.	102	36	6	90	87	4	1	15	68
Tex.	2,006	1,654	-	786	707	-	2	2	146
MOUNTAIN	403	329	18	197	212	1	7	2	79
Mont.	-	1	-	10	7	-	-	-	22
Idaho	6	-	1	6	8	-	-	-	-
Wyo.	-	3	1	1	-	-	-	-	28
Colo.	20	51	6	6	18	-	-	-	-
N. Mex.	20	12	3	43	36	1	-	2	5
Ariz.	289	88	5	96	102	-	5	-	21
Utah	4	11	2	12	19	-	-	-	1
Nev.	64	163	-	23	22	-	2	-	2
PACIFIC	1,842	2,452	26	1,504	1,849	1	49	1	141
Wash.	146	188	3	121	89	1	1	-	-
Oreg.	63	125	-	57	57	-	1	-	-
Calif.	1,619	2,131	22	1,240	1,604	-	44	1	119
Alaska	6	2	-	19	29	-	-	-	22
Hawaii	8	6	1	67	70	-	3	-	-
Guam	1	3	-	14	30	-	-	-	-
P.R.	168	232	-	51	151	-	-	-	19
V.I.	1	2	-	4	3	-	-	-	-
Amer. Samoa	-	-	-	6	2	-	-	-	-
C.N.M.I.	1	7	-	13	7	-	4	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending June 9, 1990 (23rd Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	637	438	111	54	13	21	61
Boston, Mass.	191	115	38	17	6	15	24
Bridgeport, Conn.	43	31	5	4	3	-	2
Cambridge, Mass.	28	23	3	2	-	-	3
Fall River, Mass.	26	21	5	-	-	-	-
Hartford, Conn.	58	39	11	6	1	1	6
Lowell, Mass.	18	13	2	3	-	-	-
Lynn, Mass.	13	9	1	3	-	-	2
New Bedford, Mass.	21	20	1	-	-	-	3
New Haven, Conn.	34	22	6	4	-	2	2
Providence, R.I.	52	41	5	4	2	-	1
Somerville, Mass.	7	6	-	1	-	-	2
Springfield, Mass.	48	33	9	5	-	1	7
Waterbury, Conn.	36	24	7	4	-	1	4
Worcester, Mass.	62	41	18	1	1	1	5
MID. ATLANTIC	2,594	1,645	503	294	80	72	143
Albany, N.Y.	47	36	5	3	3	-	2
Allentown, Pa.	19	15	4	-	-	-	-
Buffalo, N.Y.	106	75	20	5	2	4	4
Camden, N.J.	24	16	2	2	1	3	-
Elizabeth, N.J.	26	20	2	3	1	-	1
Erie, Pa.†	45	33	10	2	-	-	4
Jersey City, N.J.	58	38	7	5	2	6	4
N.Y. City, N.Y.	1,406	867	280	202	43	34	57
Newark, N.J.	86	38	24	13	6	5	9
Paterson, N.J.	25	17	4	4	-	-	1
Philadelphia, Pa.	308	171	77	31	17	12	21
Pittsburgh, Pa.†	54	31	18	3	1	1	3
Reading, Pa.	37	26	4	7	-	-	7
Rochester, N.Y.	105	78	18	4	1	4	13
Schenectady, N.Y.	21	17	4	-	-	-	-
Scranton, Pa.†	32	24	5	1	2	-	1
Syracuse, N.Y.	112	79	24	5	1	3	7
Trenton, N.J.	30	23	6	1	-	-	4
Utica, N.Y.	17	13	3	1	-	-	1
Yonkers, N.Y.	36	28	6	2	-	-	4
E.N. CENTRAL	2,397	1,575	490	192	57	83	130
Akron, Ohio	68	47	10	6	-	5	4
Canton, Ohio	37	28	7	2	-	-	5
Chicago, Ill.§	564	362	125	45	10	22	18
Cincinnati, Ohio	141	94	30	6	4	7	13
Cleveland, Ohio	172	103	41	21	3	4	9
Columbus, Ohio	200	124	43	16	8	9	6
Dayton, Ohio	108	72	25	8	2	1	5
Detroit, Mich.	248	147	52	32	10	7	12
Evansville, Ind.	40	31	5	3	1	-	4
Fort Wayne, Ind.	55	35	12	2	3	3	5
Gary, Ind.	22	9	8	4	-	1	-
Grand Rapids, Mich.	59	38	10	4	2	5	4
Indianapolis, Ind.	189	134	30	10	6	9	4
Madison, Wis.	43	33	5	2	3	-	6
Milwaukee, Wis.	119	88	21	4	3	3	9
Peoria, Ill.	57	38	14	4	-	1	9
Rockford, Ill.	56	39	11	6	-	-	6
South Bend, Ind.	45	31	11	-	2	1	3
Toledo, Ohio	110	76	20	12	-	2	7
Youngstown, Ohio	64	46	10	5	-	3	3
W.N. CENTRAL	787	573	124	49	19	22	39
Des Moines, Iowa	66	47	12	5	1	1	4
Duluth, Minn.	16	9	3	3	-	1	-
Kansas City, Kans.	23	18	3	2	-	-	1
Kansas City, Mo.	93	67	16	4	2	4	10
Lincoln, Nebr.	53	44	5	3	1	-	3
Minneapolis, Minn.	195	146	28	9	4	8	13
Omaha, Nebr.	80	52	16	8	3	1	7
St. Louis, Mo.	156	118	21	8	5	4	-
St. Paul, Minn.	49	30	10	5	2	2	-
Wichita, Kans.	56	42	10	2	1	1	1

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,320	804	279	143	45	46	55
Atlanta, Ga.	192	94	57	20	6	15	6
Baltimore, Md.	105	61	24	9	4	7	7
Charlotte, N.C.	90	57	15	11	3	4	8
Jacksonville, Fla.	85	54	15	14	1	1	14
Miami, Fla.	130	77	31	17	3	2	2
Norfolk, Va.	66	40	11	11	3	1	5
Richmond, Va.	97	69	11	10	5	2	8
Savannah, Ga.	55	41	9	2	1	2	3
St. Petersburg, Fla.	77	61	10	4	1	1	4
Tampa, Fla.	58	40	11	3	3	1	1
Washington, D.C.	339	193	80	39	15	10	8
Wilmington, Del.	26	17	5	3	-	-	-
E.S. CENTRAL	777	499	157	72	22	27	47
Birmingham, Ala.	92	64	22	4	-	2	1
Chattanooga, Tenn.	56	39	10	6	1	-	3
Knoxville, Tenn.	88	56	17	8	5	2	9
Louisville, Ky.	91	53	24	10	2	2	2
Memphis, Tenn.	172	98	33	21	4	16	19
Mobile, Ala.	58	37	8	8	3	2	-
Montgomery, Ala.§	51	39	9	3	-	-	4
Nashville, Tenn.	169	113	34	12	7	3	9
W.S. CENTRAL	1,949	1,179	429	206	82	53	64
Austin, Tex.	56	37	8	10	-	1	7
Baton Rouge, La.	40	24	10	5	-	1	2
Corpus Christi, Tex.	41	21	13	1	4	2	-
Dallas, Tex.	215	111	56	23	18	7	2
El Paso, Tex.	79	45	21	8	4	1	5
Fort Worth, Tex	115	70	15	18	5	7	4
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	86	53	24	5	3	1	4
New Orleans, La.	203	123	39	20	16	5	-
San Antonio, Tex.	221	147	42	16	6	10	9
Shreveport, La.	42	29	9	4	-	-	4
Tulsa, Okla.	117	83	23	7	2	2	9
MOUNTAIN	710	441	158	57	21	33	36
Albuquerque, N. Mex.	64	38	16	5	4	1	7
Colo. Springs, Colo.	47	30	12	3	1	1	4
Denver, Colo.	104	62	17	10	3	12	2
Las Vegas, Nev.	131	85	30	14	1	1	5
Ogden, Utah	20	11	8	-	1	-	1
Phoenix, Ariz.	162	91	43	11	8	9	7
Pueblo, Colo.	21	13	5	2	1	-	2
Salt Lake City, Utah	48	27	8	5	-	8	-
Tucson, Ariz.	113	84	19	7	2	1	8
PACIFIC	2,008	1,307	353	217	79	48	133
Berkeley, Calif.	18	13	3	1	1	-	-
Fresno, Calif.	93	50	14	17	7	5	10
Glendale, Calif.	31	25	4	2	-	-	2
Honolulu, Hawaii	84	59	13	6	4	2	13
Long Beach, Calif.	86	54	19	10	2	1	13
Los Angeles Calif.	580	366	110	61	36	3	25
Oakland, Calif.	77	47	14	6	7	3	8
Pasadena, Calif.	31	22	6	1	-	2	1
Portland, Oreg.	132	95	15	15	3	4	1
Sacramento, Calif.	169	114	27	19	4	5	14
San Diego, Calif.	159	102	26	22	3	6	17
San Francisco, Calif.	155	91	28	29	2	5	8
San Jose, Calif.	163	113	33	11	1	5	9
Seattle, Wash.	129	88	19	11	8	3	5
Spokane, Wash.	64	44	15	2	-	3	5
Tacoma, Wash.	37	24	7	4	1	1	7
TOTAL	13,179††	8,461	2,604	1,284	418	405	719

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 o more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are no included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past available 4 weeks.

HIV — Continued

individual cities and states. For example, the Michigan Department of Education used results from its 1988 and 1989 surveys to assist the State Board of Education in supporting school-based HIV education programs that help students avoid behaviors that result in HIV infection.

TABLE 3. Percentage of students who reported ever having used intravenous (IV) drugs or ever having shared needles for injecting drugs, by sex — selected U.S. sites, 1989

Site	IV-drug use (%)			Sharing needles (%)		
		Sex			Sex	
	Total	Female	Male	Total	Female	Male
State/Territory						
California*†	2.3	1.1	3.9	1.0	0.3	1.8
Colorado*§	3.0	2.3	3.9	0.9	0.8	0.9
Delaware¶	3.8	2.8	4.9	1.7	1.3	2.0
District of Columbia¶**	2.6	1.5	3.9	0.9	0.2	1.7
Hawaii¶	4.9	2.9	6.7	2.0	1.0	3.0
Iowa¶	3.7	2.2	5.3	1.8	1.4	2.2
Massachusetts*¶	1.6	0.9	2.3	0.5	0.1	0.9
Michigan¶	4.0	1.8	6.2	1.3	0.2	2.3
Missouri¶	2.4	0.7	4.3	1.3	0.3	2.1
New Jersey*§	2.9	1.5	4.1	0.7	0.0	1.3
New Mexico§	2.8	1.4	4.6	0.5	0.2	1.2
North Carolina§	2.4	1.7	3.2	1.3	0.9	1.6
Ohio§	2.2	1.5	3.0	0.6	0.3	0.9
Oklahoma§	5.1	3.5	6.7	1.7	1.1	2.2
Oregon¶	5.4	3.6	7.1	2.8	1.5	4.0
Pennsylvania*¶	3.8	2.6	5.0	0.8	0.4	1.3
Puerto Rico§	1.5	1.1	1.9	0.2	0.0	0.5
Tennessee§	3.2	2.1	4.6	0.9	0.4	1.4
Virgin Islands§	4.1	2.7	5.6	2.4	1.5	3.3
City						
Dallas¶	3.0	2.0	4.0	0.7	0.3	1.1
Jersey City¶	3.6	4.9	2.3	0.7	0.5	0.8
Miami¶	2.2	1.1	3.2	0.7	0.5	0.9
San Diego§	3.5	2.1	5.9	1.9	1.6	2.5
San Francisco§	2.7	2.2	3.2	1.3	0.5	2.3
Seattle†	2.9	2.2	3.6	0.9	0.9	1.0

*Surveys did not include students from the largest cities.
†Probability sample, unweighted data.
§Nonprobability sample, unweighted data.
¶Probability sample, weighted data.
**Categorized as a state for funding purposes.

HIV — Continued

In addition to determining the prevalence of HIV-related risk behaviors among high school students, surveys of this type should be used to measure the prevalence of other priority health-risk behaviors, such as drug, alcohol, and tobacco use; imprudent dietary patterns; inadequate physical activity; behaviors that result in intentional and unintentional injuries; and sexual intercourse that can result in sexually transmitted diseases or unintended pregnancies. State, territorial, and local departments of education have worked with CDC and other federal agencies to develop the Youth Risk Behavior Surveillance System. This system, implemented in 1990, will be used to periodically measure changes in these priority health-risk behaviors. To increase the number of sites with probability samples of ninth- through 12th-grade students and the comparability of data among sites, CDC is providing intensive technical assistance to interested departments of education. Departments of education can use the results

TABLE 4. Percentage of students who reported ever having had sexual intercourse or ever having had four or more sex partners, by sex — selected U.S. sites, 1989

Site	Sexual intercourse (%)			≥4 Sex partners (%)		
		Sex			Sex	
	Total	Female	Male	Total	Female	Male
State/Territory						
California*†	48.1	42.9	54.8	15.1	9.9	21.7
Colorado*§	58.4	54.0	63.5	22.9	18.4	28.0
Delaware¶	63.8	65.7	72.6	28.8	19.6	38.3
District of Columbia¶**	75.5	63.9	89.5	40.0	17.9	66.6
Iowa¶	55.5	49.4	59.5	20.3	14.7	24.5
Massachusetts*¶	52.3	46.7	58.5	15.6	10.3	21.4
Michigan†	62.8	56.6	69.3	23.7	14.2	33.9
New Mexico§	54.6	48.6	62.2	20.8	12.2	31.7
Oklahoma§	59.6	54.4	65.4	26.3	18.1	35.3
Pennsylvania*¶	56.2	54.4	58.1	20.5	16.2	24.9
Puerto Rico§	26.5	11.2	47.6	6.5	0.7	14.6
Tennessee§	58.7	53.8	64.9	21.9	13.3	32.7
Virgin Islands§	54.3	34.9	78.1	24.9	5.4	49.1
City						
Dallas¶	62.4	50.5	75.8	29.5	14.9	46.0
Jersey City¶	55.2	41.6	68.3	21.0	3.7	37.6
Miami¶	58.6	42.6	76.3	24.1	9.0	40.4
San Diego§	39.1	34.6	45.7	13.9	8.7	21.6
San Francisco§	30.0	24.7	36.1	9.9	5.7	15.4
Seattle†	48.5	40.3	57.2	19.9	10.7	30.0

*Surveys did not include students from the largest cities.
†Probability sample, unweighted data.
§Nonprobability sample, unweighted data.
¶Probability sample, weighted data.
**Categorized as a state for funding purposes.

HIV – Continued

from these surveys to plan and evaluate comprehensive school health education programs that help students avoid these priority health-risk behaviors.

Reference

1. CDC. HIV-related beliefs, knowledge, and behaviors among high school students. MMWR 1988;37:717–21.

Tickborne Diseases – Georgia, 1989

The Office of Epidemiology, Georgia Department of Human Resources (GDHR), maintains surveillance for three tickborne diseases—Lyme disease (LD), Rocky Mountain spotted fever (RMSF), and human ehrlichiosis. This report summarizes data on the occurrence of these three diseases in Georgia during 1989.

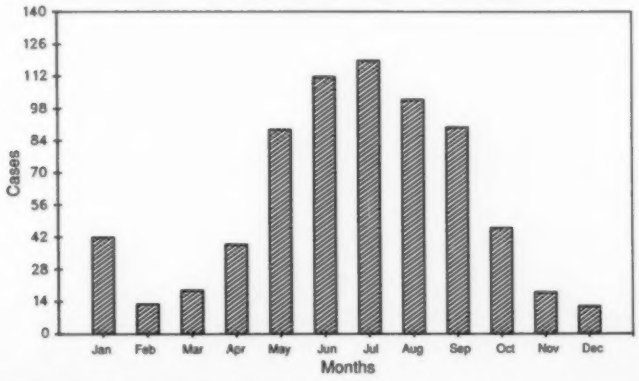
Lyme Disease

During 1989, 715 LD cases* were reported to the GDHR—a >12-fold increase from the 59 cases reported in 1988. Cases peaked during the summer, when ticks are most active (Figure 1). Onset for at least 84 (12%) patients occurred during previous years. Each of the 19 health districts in Georgia reported one or more cases of LD.

Of the 715 patients, 365 (51%) were female; 596 (84%) were white, 36 (5%) were black, and 82 (11%) were of unrecorded race. Median age of patients was 40 years (range: 1–85 years). Cases were reported from 114 (72%) of the 159 counties in Georgia. A band of counties across the midsection of Georgia accounted for most of the cases and for the highest rates (Figure 2). This area of the state also has the

*The case definition used by GDHR is 1) presence of an erythema migrans (EM) lesion and a history of tick exposure within 30 days of onset or, in the absence of known tick exposure, an EM lesion and a positive serologic test (immunofluorescence antibody [IFA] titer ≥128) or involvement of at least one body system (musculoskeletal, cardiovascular, or nervous); or 2) in the absence of EM, a positive serologic test (IFA ≥128) and involvement of one or more body systems (musculoskeletal, cardiovascular, or nervous).

FIGURE 1. Lyme disease cases* by month of onset – Georgia, 1989



*Onset dates were unknown for 14 persons.

Tickborne Diseases — Continued

highest density of white-tailed deer, which appear to play a major role in maintaining the life cycle of *Ixodes scapularis*, the vector of LD in Georgia.

Rocky Mountain Spotted Fever

During 1989, 23 RMSF cases (0.4 cases per 100,000 population) were reported to the GDHR. Six (26%) patients were <10 years of age, and 10 (43%) were <20 years of age (range: 4–71 years; median: 33 years). Seventeen patients (74%) were male; all were white. Ten (43%) were hospitalized, and RMSF was laboratory confirmed for 20 (87%). For 15 (65%) patients, a history of tick attachment or exposure to a tick-infested area was reported. Fever and/or headache were present in 20 (87%) of patients, and rash, in 13 (57%). Three counties reported multiple cases: Clarke (four cases), Cobb (three), and DeKalb (two). Onsets of illness ranged from March 31 to November 17.

Ehrlichiosis

During 1989, one case of human ehrlichiosis was reported in Georgia. A 25-year-old man from Richmond County had onset November 7 and was hospitalized for a fever of unclear etiology. Serologic tests confirmed the diagnosis of ehrlichiosis.

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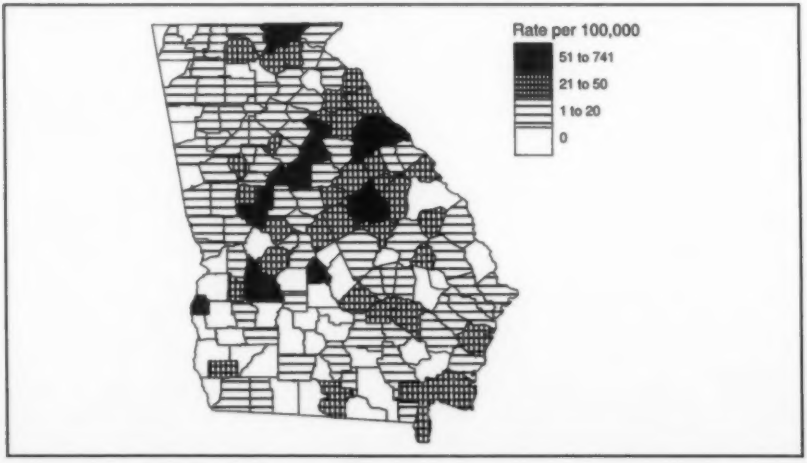
Editorial Note: LD is the most commonly reported vectorborne disease in the United States (*1*). The approximately 7400 cases provisionally reported for 1989 represent a 62% increase over those reported for 1988 (*2*) and a 15-fold increase from 1982, when national surveillance was established. As a result of surveillance efforts, the epidemiology of LD, RMSF, and ehrlichiosis is now more clearly defined, and preventive measures have been identified (*1–3*). These measures include avoidance of sites suspected to be infested with ticks; use of repellents and acaracides, wearing of protective clothing, and frequent inspection for and prompt removal of attached ticks.

The 12-fold increase in the number of LD cases reported by the GDHR from 1988 to 1989 is one of the largest reported by any state for a similar period; the Georgia

FIGURE 2. Rates of Lyme disease, by county — Georgia, 1989



Tickborne Diseases — Continued

rate in 1989 is among the 10 highest in the United States and is 10- to 20-fold greater than the rates reported in surrounding states. Laboratory-confirmed LD has consistently been concentrated geographically in the northeastern, mid-Atlantic, north central, and northern Pacific coastal areas (*1,2*). The high rate in Georgia in 1989 may reflect a fundamental change in the local epidemiology of the disease, an alteration in reporting resulting from a major change in physician and public awareness, and/or a change in availability or sensitivity of diagnostic tests.

During 1988 and 1989, the GDHR conducted extensive education programs for both physicians and the public about LD and made laboratory testing available. During this period, the GDHR public health laboratory was the only laboratory in the state doing serologic testing for LD. These factors also may have contributed to increased reporting.

The diagnosis of LD may be difficult to make in some cases and requires a careful assessment of clinical, epidemiologic, and laboratory features. Signs and symptoms are often nonspecific, and a history of tick exposure may be absent. Laboratory diagnosis is problematic and cannot be relied on as the sole determinant in evaluation of an individual case (*4*). *Borrelia burgdorferi* is difficult to isolate by culture, even when present in a clinical specimen. Serologic tests, especially in the early phase of illness, are inadequately sensitive. In addition, these tests are nonspecific, and crossreactions with other closely related spirochetes can occur; some positive antibody reactions in both humans and nonhuman hosts may be due to that crossreactivity. Monoclonal antibodies are now being used to identify *B. burgdorferi* in ticks (*5*); however, these tests are difficult to perform and must be carefully interpreted.

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Notice to Readers

International Travelers' Hotline

CDC's Travelers' Health Section, Division of Quarantine, Center for Prevention Services, now has a 24-hour-a-day automated telephone system that provides information for international travelers on vaccine requirements and recommendations by geographic area. Menu options include information on malaria, food and water precautions, travelers' diarrhea, immunizations for children <2 years of age, pregnant travelers, and disease outbreaks. To access this information, dial (404) 332-4559.

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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

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